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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,945	08/22/2003	Robert Joseph Crowley	RJC-4	2979
7590	06/23/2006		EXAMINER	
Donald N. Halgren 35 Central St Manchester, MA 01944				BASHORE, ALAIN L
		ART UNIT	PAPER NUMBER	1762

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/646,945	CROWLEY, ROBERT JOSEPH	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alain L. Bashore	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12 October 2004.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 18-82 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 18-82 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper."

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 19-21, 23-24, 28-30, 32, 36, 47-51, 58, 62-63, 66, 68-73, 75-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al in view of Bethune et al.

Xu et al discloses a method of manufacturing an array of carbon fibers including arranging a predetermined pattern of fiber growth sites on a substrate and growing at least one carbon fiber from the growth sites on the substrate. There is disclosed

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influencing growth direction of the fibers and growing fibers to a specific length, specific diameter, growth sites include metal and metal oxide, and silicon substrate (col 7, lines 5-40; col 8, lines 1-26; col 9, lines 7-16; col 9, lines 30-54).

Xu et al does not disclose carbon nanotubes explicitly.

Bethune et al discloses carbon nanotubes (col 1, lines 54-67).

It would have been obvious to one with ordinary skill in the art to substitute carbon nanotubes for the carbon fibers because Xu et al teaches that the carbon fibers may be "tubular" (col 9, lines 30-34).

4. Claims 22, 31, 33, 52-57, 59-61, 67, 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al in view of Bethune et al as applied to claims above, and further in view of Smalley et al ('312).

Xu et al and Bethune et al do not disclose the feedback and doped recitations as claimed.

Smalley et al ('312) discloses feed back (col 3, lines 55-62) and doping (col 4, lines 37-41).

It would have been obvious to one with ordinary skill in the art to include feed back because Xu et al teaches that a desired length may be desired.

It would have been obvious to one with ordinary skill in the art to include doping because Smalley et al ('312) teaches that doping may enhance growth.

5. Claims 25-27, 37-40, 44-46, 78-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al in view of Bethune et al as applied to claims above, and further in view of Walker et al.

Xu et al and Bethune et al do not disclose an external field utilized, further a static electric field.

Walker et al discloses disclose an external field utilized, further a static electric field (col 15, lines 24-31).

It would have been obvious to one with ordinary skill in the art to include an external field utilized, further a static electric field because Walker et al teaches substrate enhancement.

6. Claims 34-35, 42-43 rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al in view of Bethune et al as applied to claims above, and further in view of Ohmine.

Xu et al and Bethune et al do not disclose depression recitations as claimed.

Ohmine discloses depressions (see abstract).

It would have been obvious to one with ordinary skill in the art to include depressions as claimed because Ohmine teaches phase growth enhancement.

***Allowable Subject Matter***

7. Claims 41, 64-65, and 82 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alain L. Bashore whose telephone number is 571-272-6739. The examiner can normally be reached on about 7:30 am to 5:00 pm (Mon. thru Thurs.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alain L. Bashore  
Primary Examiner  
Art Unit 1762